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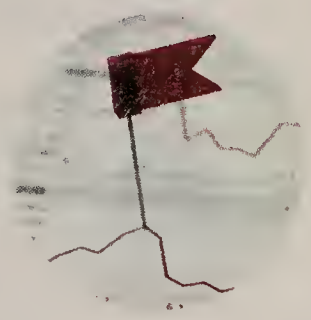

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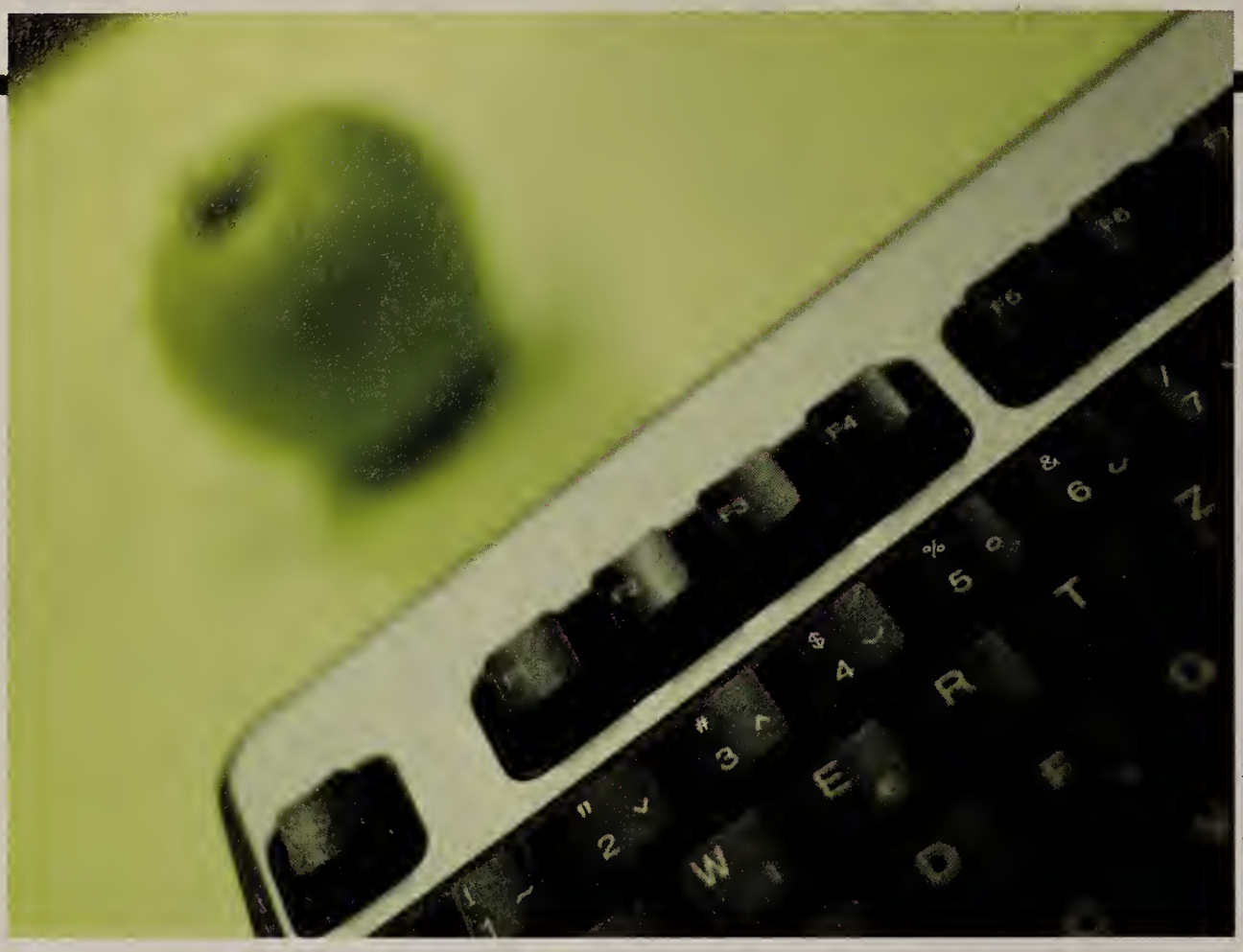
Great Ideas

HeadsUp



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EDUCATION NETWORKS

Schools Need 100Mbps Per 1,000 Users

AMERICAN SCHOOLS need mega-broadband networks — and they need them soon, a new report says.

Specifically, U.S. educational institutions will need networks that deliver broadband performance of 100Mbps for every 1,000 students and staff members in time for the 2014-15 school year. That's the conclusion reached by the State Educational Technology Directors Association (SETDA).

Why the need for speed? For one thing, more and more schools are using online textbooks and collaboration tools, said Christine Fox, director of educational leadership and research at SETDA. Broadband access must be "ubiquitous" and "robust," she said, adding that schools should think of broadband as a "necessary utility," not as an add-on.

The report, called "The Broadband Imperative," further suggests that schools should upgrade their networks to support speeds of 1Gbps per 1,000 users in five years. SETDA noted that users who stream high-definition video will require download speeds of 4Mbps.

In Lawrence Township, N.J., students use videoconferencing to learn French from Canadian students, said Andrew Zuckerman, director of instructional services for the municipality's school district.

And in Maine, some schools have 1,400 concurrent broadband users, said Jeff Mao, learning technology policy director at the Maine Department of Education. That many concurrent users "are not going to live on a 10-megabit pipe," he said. "They need a much more robust Internet connection."

– Grant Gross, IDG News Service

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IT INDUSTRY

SAP to Pay $4.3B For Cloud B2B Vendor Ariba

SAP has agreed to purchase cloud-based e-commerce vendor Ariba for $4.3 billion.

The deal has been unanimously approved by Ariba's board and is expected to close by Sept. 30.

The addition of Ariba's business-to-business commerce platform will expand SAP's cloud software lineup, which got an earlier boost from the ERP vendor's recent $3.4 billion acquisition of SuccessFactors, a provider of human resources services.

SAP's cloud computing strategy is aimed at enabling the company to compete against traditional rivals such as Oracle, as well as pure cloud vendors like Workday and NetSuite.

Ariba reported $444 million in 2011 revenue and said its trading network is involved with more than $319 billion in "commerce transactions, collaborations, and intelligence among more than 730,000 companies," according to a statement.

SAP said it will consolidate all "cloud-related supplier assets" under the auspices of Ariba, which will operate as an independent subsidiary.

The company plans to keep Ariba's platform open, allowing it to accept data from "any source," according to SAP co-CEO Bill McDermott. SAP also plans to use the platform it bought last year from Crossgate, which has some of the same features as Ariba's.

– CHRIS KANARACUS, IDG NEWS SERVICE

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BETWEEN THE LINES

By John Klossner

MOBILE DEVICES

Enterprise Android Use 'Severely Limited'

ADOPTION OF Android tablets and smartphones in enterprises has been "severely limited" by the complexities of managing the wide variety of devices and versions of the operating system, according to research firm Gartner.

A Gartner evaluation of 20 mobile device management (MDM) vendors said Google had "weaker management support" for Android than Apple or Research In Motion had for their respective platforms.

In a survey conducted in April, Gartner found that almost 60% of enterprises plan to standardize on Apple's iOS in the next 12 months. In comparison, 20% of enterprises said they plan to use BlackBerry devices and 9% said they had chosen Android.

A big reason why it's so hard to manage Android devices, Gartner said, is that Google hasn't opened many APIs to allow MDM vendors to connect their software to the operating system. Google offers 16 APIs for Android 4.0, whereas RIM makes more than 500 APIs available for the latest BlackBerry version.

Some MDM vendors have built proprietary APIs, but that's "time-consuming and expensive to do for each device and version of Android," Gartner said.

Google didn't respond to a request for comment about Gartner's report.

Some Android vendors have defended the tools available for managing Android-based devices. Those supporters include Motorola Mobility, which Google acquired last month.

Motorola Mobility offers 3LM MDM software, which it acquired in 2011. Version 3.0 of the 3LM MDM platform for managing Android 4.0- and iOS-based devices, unveiled in May, sports a new interface for IT managers, along with tools designed to prevent users from copying corporate data to nonapproved systems.

Gartner didn't include 3LM in its review because it considers 3LM an API builder, not a maker of true MDM software, said Gartner analyst and report co-author Phillip Redman.

– Matt Hamblen

Micro Burst

Devices running iOS and Android accounted for

82%

of all smartphones sold in the first quarter of 2012.

SOURCE: IDC

SECURITY

Utah CTO Steps Down Following Data Breach

The executive director of Utah's Department of Technology Services has resigned over a data breach that exposed the Social Security numbers and other personal data of about 280,000 Medicaid recipients.

Utah Gov. Gary Herbert announced the resignation of Stephen Fletcher on May 15.

In a statement, Herbert described various initiatives that are designed to mitigate the risk of similar breaches in the future. The plan includes an independent audit of all IT security systems, the appointment of a health-data security ombudsman – Sheila Walsh-McDonald – and a continuing investigation by law enforcement into the recent breach.

"The people of Utah rightly believe that their government will protect them, their families and their personal data," Herbert said. "We failed to honor that commitment."

Hackers, believed to be operating out of Eastern Europe, broke into a state Medicaid server by exploiting a default password on the user authentication layer of the system.

The roles of two other state IT employees in the breach are also under investigation, according to the *Salt Lake Tribune*. And a contractor has been fired for providing unencrypted software, the newspaper said.

– JAIKUMAR VIJAYAN

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BROCADE

HP CEO Takes Risk By Helping Romney

Meg Whitman's support of the GOP presidential nominee could affect public perception of the company or even lead to closer scrutiny by the government. By Patrick Thibodeau

WHEN MEG WHITMAN was appointed CEO of Hewlett-Packard last September, her longtime friendship with Republican presidential candidate Mitt Romney was well known.

Since then, Whitman has played a public role in the Romney campaign. In March, she was listed as one of the campaign's "statewide honorary chairmen" for California. In April, the campaign cited Whitman's job as HP CEO in its list of high-profile endorsements. And last week, Whitman co-chaired a major Romney fundraiser.

It's not hard to imagine the kind of political theater that the Whitney-Romney partnership could inspire, especially in light of the fact that Romney is vowing to create jobs but Whitman last month announced that HP would cut 27,000 positions.

In an interview posted by *National Review* on May 17, as reports of HP layoffs were spreading, Romney praised Whitman. "I wish Californians had elected Meg Whitman [governor]. She would have been more successful and explained to Californians the need to cut back on spending and eliminate unnecessary programs," he said.

Romney might think twice about being closely affiliated with a company that plans to cut 9,000 employees by Oct. 31, days before the election.

The Romney-Whitman connection also creates risks for HP. Among other things, it could impact public perception of the company or play a role in the degree of scrutiny the company faces when seeking government contracts.

"There is no upside for an organization having their CEO so prominently supporting one political candidate," said David Gebler, an adviser to Suffolk University's graduate Ethics and Public Policy program, and author of the book *Creating a Culture of Compliance*.

HP doesn't discourage employees from getting involved in politics. But its code of conduct advises workers to "ensure that your individual political views and activities are not viewed as those of HP."

In a statement, an HP spokesman said that "Meg Whitman's support of Mitt Romney is that of a private individual. HP has not taken a position in the current presidential election."

While most CEOs don't become active in political campaigns, Michael Robinson, executive vice president of Levick Strategic Communications, said Whitman's gubernatorial campaign created an exception to the rule. "It's not as if her views and affiliations aren't widely known," he said.

The HP board acted with its eyes open in hiring Whitman, said Robinson, noting that board members wanted a "high-profile" CEO with "star power."

David Johnson, CEO of Strategic Vision, a public relations and political consulting firm, said Whitman could be courting disaster. "She risks alienating board members, making political enemies even more of the Obama administration and Democrats, and holding HP to even greater media attention as the company continues to rebuild," said Johnson.

Silicon Valley CEOs have at times played visible roles in politics. In late 2008, Google's then-CEO, Eric Schmidt, publicly supported Barack Obama in the presidential campaign.

Whitman's links to Romney are deep. She worked at Romney's Bain & Co. for eight years.

Rita Gunther McGrath, an associate professor at Columbia Business School, said that considering the length of Whitman and Romney's relationship, she's "inclined to accept [Whitman's] position . . . bearing in mind the risks." That said, McGrath added she might be concerned about Whitman "getting distracted with election-year politics when digging HP out of the ditch." ◆

> **"There is no upside** for an organization having their CEO so prominently supporting one political candidate.
>
> — **DAVID GEBLER,** ETHICS AND PUBLIC POLICY PROGRAM, SUFFOLK UNIVERSITY

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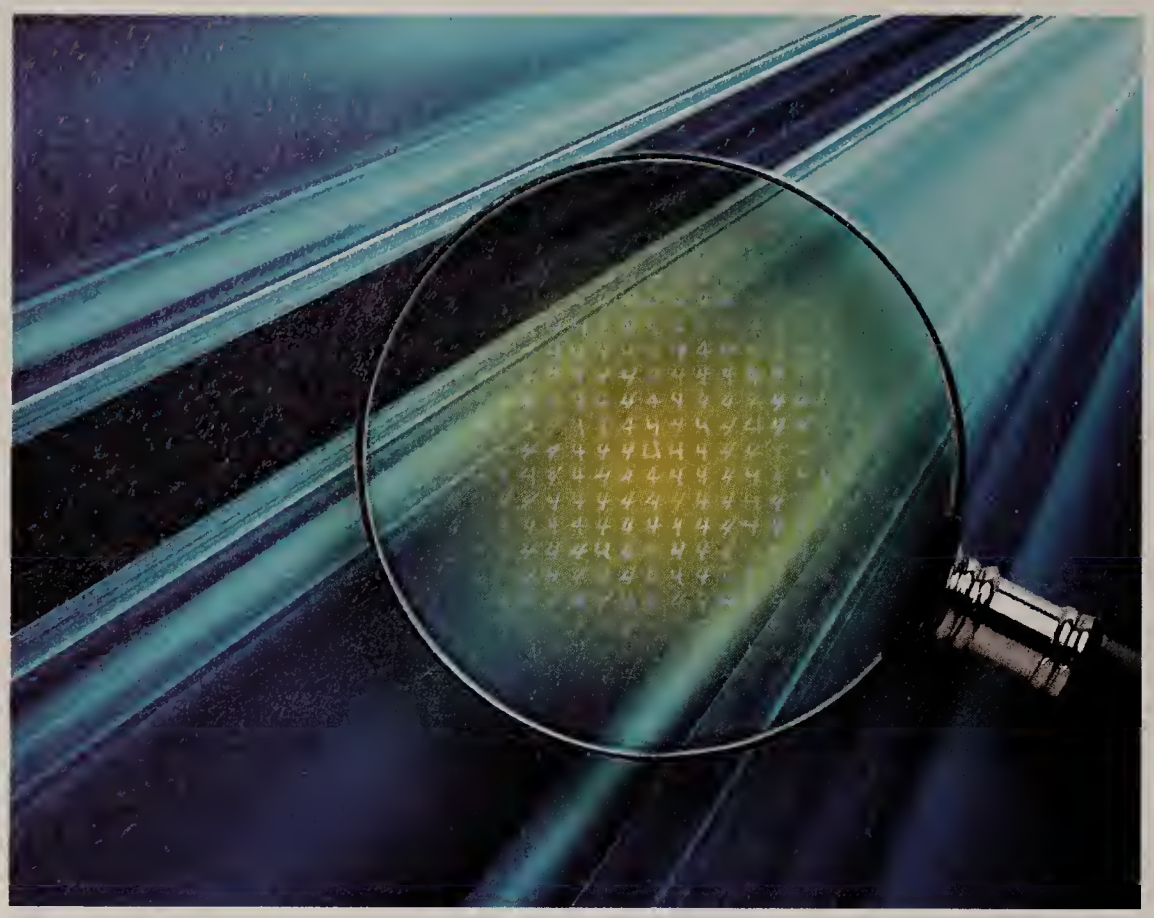

New BI Practices Yield Big Payoffs

An insurer says 'new analytics' tools helped it save $10 million in project costs and reduce its ranks of outside contractors by 25%. By Jaikumar Vijayan

A NUMBER OF COMPANIES are reporting dramatic payoffs from what analysts say have been radical changes in their business intelligence and data analysis practices.

The IT operations at health insurer CareFirst, advertising firm The CementBloc and other enterprises have embraced what consulting firm PricewaterhouseCoopers calls "new analytics" — a term that refers to the practice of providing business users with access to next-generation BI reporting and data analytics tools.

In a report, PwC said the new BI practices are "about detecting opportunities and threats you hadn't anticipated, or finding people you didn't know existed who could be your next customers."

The "old analytics" approach, still in widespread use, depends on centralized, top-down data collection, reporting and analysis.

In the traditional process, analysts develop a set of questions and then wait for IT to aggregate and cleanse the relevant data and build paths between data elements to enable analysis, said Carol Church, director of the project management office at CareFirst.

Since CareFirst installed a new self-service BI platform two years ago, users now have real-time access to project data and other resources. Questions posed on the spot can be analyzed in near-real time — a fraction of the time it would take to get answers using IT-centric BI systems, Church said.

Tasks that once took up to 18 months now take less than two days, she said. Moreover, the project management office no longer depends on centralized analytics teams to run BI reports.

The system is based on QlikTech's QlikView analytics technology, which the insurer installed as a supplement to a CA project management system. Church said QlikView helped CareFirst save $10 million in project costs and enabled it to cut the number of outside contractors it uses by 25% over two years.

At The CementBloc, employees are using newly installed Spotfire data analytics tools from Tibco to explore big and diverse data sets at will and find relationships between data elements they didn't know existed, said Ira Haimowitz, the firm's executive vice president of intelligence and analytics.

Spotfire's in-memory database technology and its search and data visualization capabilities eliminate steps that were required with traditional BI technology, such as listing queries "by customer segment, or by geography, and [then] mapping that out to a program, and then generating queries and reports," Haimowitz said.

The move to new analytics tools is driven by an explosion of data that has accompanied the emergence of cloud computing, mobile computing and social media. Analysts also point out that there's been a steady increase in the number of tools that can easily aggregate and analyze large data sets.

The tools are coming from traditional IT vendors, such as IBM, Teradata, Tibco and SAS, as well as BI-focused companies like QlikTech and newcomers like Birst, Tableau and Splunk.

The new analytics systems can provide "more and more ways to capture, move, scrub and analyze data," said Bill Abbott, a PwC principal specializing in applied analytics. ◆

> "['New analytics' tools provide] more and more ways to **capture, move, scrub and analyze** data. – **BILL ABBOTT,** PRINCIPAL, PRICEWATERHOUSECOOPERS

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Tracey Rothenberger

Dual roles in both process and technology showcase this leader's strengths.

Family: Wife and two beagles.

Hobbies: Long-distance running and high-performance motorcycle racing.

Do you plan to run a full marathon? The training time is quite a commitment. I'm a Type A personality, so I don't want to do anything halfway.

What book are you currently reading? *Too Big to Know: Rethinking Knowledge Now That the Facts Aren't the Facts, Experts Are Everywhere, and the Smartest Person in the Room Is the Room*, by David Weinberger.

What's your biggest career goal? Probably to figure out my next career phase. The role of CIO is changing, and the role I'll have 10 years from now is probably something I can't conceive of today.

MANY IT LEADERS *have moved between technology and operations, but Tracey Rothenberger's dual role at Ricoh Americas is still unique in the world of IT management. Rothenberger last year added chief process officer to his existing titles of senior vice president and CIO. "We were trying to merge two multibillion-dollar companies — IKON Office Solutions and Ricoh. When you merge two large organizations, you have so much system and operations and process interaction, our chairman saw a distinct need to create a specific role to come up with our strategy so we'd have the best processes as we went through this transition and built the new company," Rothenberger explains. Here he reflects on the career that brought him to his current position.*

How did you land the CPO position? I've led large business transformation initiatives in the past at IKON, and I've led large business stabilization efforts at both IKON and

Continued on page 12

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> **If a top leader isn't willing to put the best and brightest** on [an] initiative, then that top leader doesn't see the value in the potential success of that initiative.

Continued from page 10

Ricoh. So I had a good reputation for being able to come in and collaborate and see where the organization may need help bringing to bear those resources in a way that was very dynamic and very cross-functional. Also, my ability to put together collaborative teams that don't report to me is one of the skills they valued.

How does the CPO role fit with your duties as CIO? Sometimes it doesn't, but oftentimes it does. When an organization is going through a business and process transformation, there's almost always a corresponding systems implication and those tend to be expensive. And if you're trying to create a new business solution or innovate in a specific area, you want to have that strategy pretty well thought-out before stepping into a new system investment. So I'd say 25% to 30% of my time is spent doing work that never touches IT, and that's in areas where I'm focused on process improvement. But when it does transition into needing a technology, then we have better clarity and alignment on what we need for IT. And that's where you get the real harmony, because you're able to provide much better clarity on what's needed, you're able to control the scope of projects and drive them more quickly, and ultimately they end up being less costly because you have such good, sharp focus.

How do you get all of your work done? I have a very strong leadership team, and my leaders have very good alignment with my expectations, the expectations of the corporation, and they have the ability to execute. They have a high degree of empowerment, and that allows me to play a real strategic role.

How do you build a good team? You need individuals who are decisive. I don't want leaders who are sitting around trying to analyze things to death. I'd rather have someone make a decision and change directions later if they get new information. I'm looking for people who have managerial courage, who can raise their hand and disagree. If we have a lively debate inside our teams in the right context, we ultimately get to the best decisions. And I look for people who are good coaches, because they have to take this message down to the next level so we can get alignment, because we're talking about fairly large teams.

I've heard you can talk about "the power of a multilevel approach to business transformation." What's that? There's a lot of talk about executive sponsorship, and that's one level of business transformation. But a deeper, more significant level is: Who are the subject-matter experts inside those leaders' teams who really need to come to the table to take a concept to a tactical level? That's where an organization might struggle, and you find the alignment or commitment isn't as strong as you think. If a top leader isn't willing to put the best and brightest on a transformation initiative, then that top leader doesn't see the value in the potential success of that initiative. So when I think of a multilevel approach, I'm thinking of not only the top-level buy-in, but [whether we] are also getting the best and brightest subject-matter experts engaged at the right level.

You wrote in one of your blogs that "IT people are notorious control freaks." As a leader, how do you manage that mentality? When you have leaders or employees stuck in the old way, you have to call them out on it, and twist it backward and ask what the customer ultimately is trying to get out of the experience. They're not trying to intentionally circumvent IT; they have something they're trying to accomplish. How do we help them?

Do you see any required leadership qualities that are unique to IT managers? No, not at the leadership level. IT leaders generally like to think of themselves as somehow different than other business leaders, but I don't see why. Everyone has domain expertise, but the leadership qualities are the same.

Do those qualities come naturally to you? I have to work on all of them all the time. For me, the easiest one is decisiveness. I tend to be a rapid-response person. I tend to leap first and be more agile in changing that approach if need be. The one that I always have to work on is the coaching one. I always have to remember to make sure that I'm helping people understand why I have a particular opinion or observation, because when they understand why I'm trying to do something, it helps to get them more brought-in.

– *Interview by* Computerworld *contributing writer*
Mary K. Pratt *(marykpratt@verizon.net)*

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PRESTON GRALLA

Microsoft Innovates But Falls Short on Capitalizing

> Too often, Microsoft tries to force-fit innovations into its Windows universe.

QUICK QUIZ: Who developed a smartphone operating system first — Apple or Microsoft? Of the two, who released a tablet first?

In both cases, it was Microsoft, and the race wasn't even close. The Microsoft Tablet PC was announced in 2001, and tablets built to its specifications were released in 2002, eight years before the iPad first appeared. That same year, Microsoft Pocket PC 2002 was developed for smartphones. (It later became Windows Mobile, and now is Windows Phone.) Apple got around to building its first smartphone, the iPhone, five years later, in 2007.

Apple has long been portrayed as the technology world's leading innovator, coming up with visionary ideas well before anyone else and creating entire product categories from scratch. Microsoft has been thought of as an unimaginative plodder, waiting for others to develop innovations, and then coming in with brute force and cornering the market with big marketing budgets and smart business moves.

In fact, though, Microsoft has been out front on a number of occasions. It's not that it can't innovate. It's that it doesn't do a good job of turning innovations into market-changing products.

Take the Tablet PC. At the time, it was certainly innovative. But Microsoft never figured out how to make a marketable product out of it, largely because the company thought about it as a traditional computer in a different form factor — essentially a tablet-based Windows PC. In a press release at the time, Microsoft described it this way: "The size of a legal notepad and half the weight of most of today's laptop PCs, the Tablet PC is a full-powered, full-featured PC." Full-priced, too, typically costing $2,000. It wasn't until Apple rethought what a tablet should be — less expensive, app-driven and primarily for consuming content rather than creating it — that the tablet market took off.

As for Pocket PC/Windows Mobile, Microsoft made a similar mistake. Rather than considering what the ideal smartphone operating system would be, Microsoft tied the features and technology of the phone to Windows, an operating system not well suited to a phone's form factor and features. Once again, Apple took a fresh look at what a phone should be able to do, and essentially created the consumer smartphone market.

There's a common thread to both of these Microsoft innovations that ended up as failures: Microsoft tried to force-fit them into its Windows universe, rather than consider what consumers would truly want in them. That's where Apple excels. It didn't build the first tablet, the first smartphone or the first portable music player. But it intuited what people wanted in them, knew when the market was right for releasing them, and then did a superb job of engineering them.

This isn't to say that Microsoft never gets it right, or isn't capable of getting it right. The best example of that is the Kinect, a remarkable marriage of motion-sensing technology and intelligence used to control the Xbox 360 with movement, gestures and voice. It's been a hit not only in the market, but also among researchers at universities and with hardware hackers everywhere.

Kinect wasn't developed as an adjunct to Windows. That freed Microsoft to start its development with a clean slate. Microsoft needs to find a way to do the same with other products, or else it will remain an innovative company that can't capitalize on its innovations. ◆

Preston Gralla is a *Computerworld.com* contributing editor and the author of more than 35 books, including *How the Internet Works* (Que, 2006).

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IT Skills: JUMPING THE CHASM

The current tech talent gap is just the first sign of a coming revolution in the IT jobs market. **Here's how to secure your footing now** and brace for what's ahead.

BY JULIA KING AND TRACY MAYOR

ALL IT THE TECH INDUSTRY'S VERSION of a riddle wrapped in a mystery inside an enigma: Businesses have job openings, but IT professionals are struggling to land jobs or move to better ones.

What phenomenon could knock the hallowed laws of supply and demand off-kilter? Two words: "skills gap."

It seems as though tales of this alleged skills gap have become especially common during the past six months. As the story goes, employers are desperate to find people with expertise in hot areas like mobile app development, cloud computing and business analytics, while employees, exhausted from staff reductions and increased workloads, wonder what more they must to do to keep current.

DANTE TERZIGNI ILLUSTRATION

It's a tragic tale — but not completely accurate, according to some tech-employment experts. The situation is more nuanced than what can be captured in a headline, and both workers and employers share responsibility for the gap, they say.

Most portentous, though, is that the gap, whatever its true nature, is rapidly becoming a yawning chasm — one that IT employees will have to cross sooner rather than later. Many hiring experts, IT managers and CIOs believe that the tech employment landscape will be radically different five years from now as more and more companies outsource IT operations to service providers, perhaps offshore, or move traditional IT jobs to other business units.

In the face of such rapid change, it's becoming clear that the one skill every member of the IT workforce needs is career management.

"Everybody is a free agent, navigating the corporate chaos," says Todd Weinman, president of The Weinman Group, an executive search firm headquartered in Oakland, Calif., that specializes in audit and corporate governance. In the IT job market, he says, "the people who are faring a little bit better are constantly cultivating their careers on a variety of fronts."

Tech employees log long hours, meaning they get a lot of hands-on experience, but they're not getting the training and other types of enrichment they need to develop their careers. "In addition to your 50-plus hours a week, you need in-depth coursework to refresh your skills, plus studying to sit for certifications," says Weinman. At many companies, employees used to be able to take time for those types of pursuits during the workday, but not anymore.

"Those who want to stay relevant have to work very hard" — at work and during off-hours, says Weinman, who is a member of the ISACA Leadership Development Committee. ISACA is an IT professional association that, among other things, provides security certifications.

Companies are not willing to take a risk. Nobody's jumping out the window to hire the average employee.

JACK CULLEN, PRESIDENT, MODIS

The Current Gap

Weinman is one of several employment experts who say they see a clear gap between the talent that employers are seeking and the talent that's available. "It's very difficult to find people who have deep skills in security on mobile devices, infrastructure, network security, advanced persistent threats or mainframe skills," he says. "People who have those skills are becoming a smaller percentage of the overall population."

Suzanne Fairlie is also hearing how difficult it is to find people with certain skills — but she says the gap involves a different set of skills. Fairlie, president of ProSearch, a nationwide executive search company with a strong focus on CIO placement, took a back-of-the-envelope survey of 12 CIOs with whom she has worked recently. "To a person, everybody validated that there is a gap," she says. But it's not necessarily a gap in deep technical skills; it primarily involves the strategic skills that managers are increasingly demanding of everyone in their departments.

The list includes "business analysis skills, relationship skills, understanding the value of IT to the organization, navigating internal politics," says Fairlie. "Those are hard to come by, and yet, they're so essential."

Jack Cullen, president of Modis, a global provider of IT staffing services, concurs. "In today's marketplace, if you have good references and a strong technical skill set and can communicate how you'll provide ROI, four jobs will be waiting for you," he says.

What amazes, and to some degree frustrates, Cullen are those instances when clients choose not to hire a job applicant because they can't check every box on their wish lists. "We're seeing this huge pent-up demand, and the pool of labor isn't growing. And yet, what's perplexing is just how specific hiring managers still are," he says. "They want this skill, that particular work on the network side, certifications, this many years of experience. Companies are not willing to take a risk. Nobody's jumping out the window to hire the average employee."

Weinman blames the Great Recession for starting IT down the path that led to the skills gap, while cautioning that an improved economy won't much ease the crunch for many workers.

"Companies are getting leaner and leaner. Starting in 2008, they downsized and streamlined, and they haven't replaced those positions," he observes. "If you're the hiring director of one of these very lean teams, you want only A+ workers. In the past, someone could get away with being a solid middle-of-the-road employee. Not anymore."

Charles Williams sees the situation from both sides. As manager of data systems at Georgia System Operations, an electric utility in Tucker, Ga., he wants and expects the people who report to him (currently there are seven) to keep their skills up to date. At the same time, he acknowledges that he is challenged to keep his own knowledge fresh when day-to-day duties take priority over opportunities to investigate up-and-coming technologies.

"In a way, it's natural for a manager to develop a technical skills gap. We're not able to sit down and play with things the way our employees might," he says. And that worries him. "I feel like I need to know a lot about the different job skills in my department," he adds. "I need to understand at a deep technical level what my employees are talking about."

Cutbacks in training and travel haven't helped Williams or his employees in their quest to stay relevant. "It's been a mixed bag because of the recession, but we're starting to see that turn around," he says. Upper management is beginning to loosen the restrictions on training, especially in the area of security.

The Looming IT Job Exodus

Even as IT employees and managers like Williams and his crew begin to polish skills that grew rusty during the recession, a much more dire scenario awaits them.

An increasing number of forward-thinking CIOs, employment experts and analysts are convinced that the current skills gap isn't just a temporary hiccup. In the long run, they assert, there will simply be fewer pure technology jobs in corporate America.

As companies of all sizes opt to tap service providers for their IT needs, corporate IT departments are shrinking. As the number of on-premises hardware and software systems decreases, fewer IT employees will be needed for their care and feeding.

Continued on page 20

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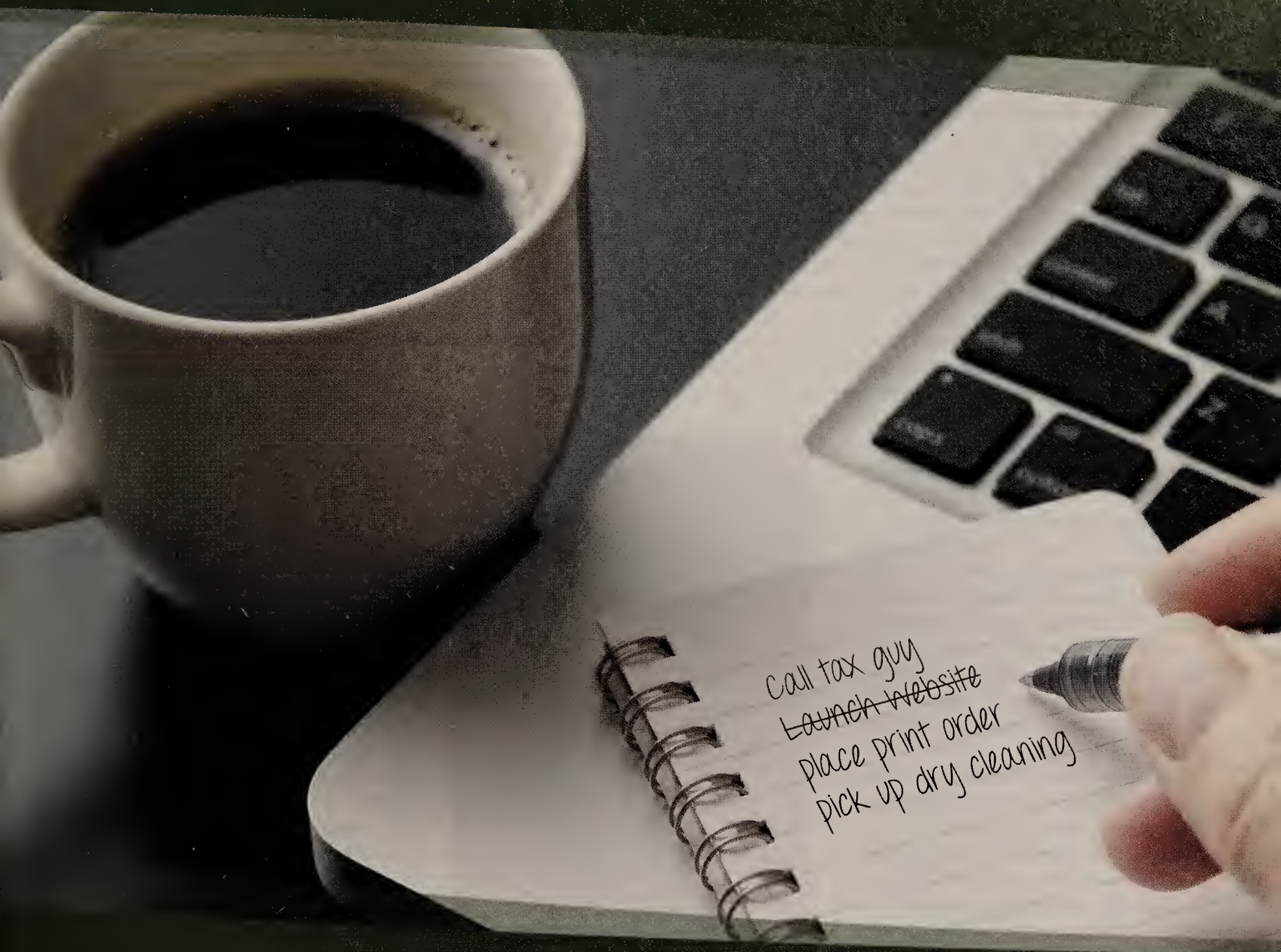

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Continued from page 18

At Freescale Semiconductor, that change has taken place. Software as a service is being used "in every business function, including IT," says CIO Tarek ElHadidi. "The infrastructure is outsourced." IT's role now is to "decide how we want it done," he adds. "We are dictating policies and rules to service providers."

To do that effectively, ElHadidi says he needs people with a deep understanding of Freescale's business processes, not technical protocols. For example, the value of IT professionals who know EDI is not so much in their technical knowledge and experience with EDI, but in their deep knowledge of how transactions move through the company and where the sticking points might be.

The same holds true for other disciplines, including emerging technologies such as cloud computing. "I'm not interested in [hiring] a cloud architect, but a pricing architect or a procurement architect," ElHadidi says.

At Carlsbad, Calif.-based United Orthopedic Group, which manufactures orthopedic braces and operates clinics, many of the deeply technical aspects of IT have been automated through virtualization and other new technologies.

"United runs on a fully virtualized infrastructure that is entirely managed from a single console," says CIO James Clent, who presides over a 21-person IT organization. That means there's less need for multiple support technicians.

When Clent needs a specialized technical assist, he turns to service providers. "I don't have staff for all of those things that don't require business knowledge," he says. "When I really need somebody [with enough IT expertise] to go under the hood, I'll contract for them."

That state of affairs is actually good news for IT pros like James Penman and Vince Montalbano, who both once had jobs in corporate IT and now work as contractors.

Penman is a senior consultant at Smart Consulting Firm in Naples, Fla., which caters to the financial services industry. He previously served as a CIO or CTO at several startups, and he also worked at Bank of America and Wachovia Securities.

In other words, he's seen it all. And now, he says, consulting is the place to be — for a certain type of IT professional, at least.

"There's been a natural evolution to the use of service providers and external clouds, and the talent has moved with that," Penman says. "I like to build and design and create big systems" — as he did when he worked at the big banks — "but any given company does not put in a new portfolio management system every year. If you're a real hotshot technology guy, you don't want to be sitting around doing maintenance for four years waiting for the next big-nut project."

Montalbano is a senior infrastructure consultant at Microsoft consultancy Catapult Systems in Houston. After surviving three rounds of layoffs at his first corporate IT job, he resigned and took a series of contract jobs, and that experience convinced him that there were more stable, and more interesting, opportunities for him outside the organization.

"Unless you're the guy with the in-house tribal knowledge of the company, everything else is going to wind up with a consultant or contractor," says Montalbano. He's currently working on a long-term Windows 7 deployment at a "pretty good-sized" international company. "They don't have the skills to do this in-house," he says.

Specialist or Generalist?

Like many big companies, consumer products giant Kimberly-Clark is combining what were individual IT specializations, such as firewall or intrusion-detection skills, into broader job titles.

The company once had more than 300 discrete job specifications for IT roles. But now, "I'm down to about 45," says David Richter, vice president of global infrastructure and operations.

As part of a broader plan to redeploy 252 in-house IT professionals, Kimberly-Clark employees are rotating through various jobs to learn the skills they need to perform in new roles. "Our roles are more generic than previously," he says.

Richter's goal is simple: "I need a broader bench. I need people who have two or three areas of expertise," he says.

Cook Children's Health Care System in Fort Worth, Texas, is similarly de-emphasizing individual technology specializations and "melding roles," says CIO Theresa Meadows.

To cross-train workers for the broader new roles, she instituted a "pod system" where three or four people with different skills work in groups so they can learn from one another. "That's how we're beginning to address [the skills gap]," says Meadows.

Specifically, she needs more business process knowledge within her IT staff, which currently numbers around 170. "Tools are important, but it's equally important to know the business and how the tool you're implementing impacts that process. It's almost more critical to get that business process knowledge, because we can teach the tools," Meadows observes.

Dru Urbaniak works at a company far smaller than Kimberly-Clark or Cook Children's — in fact, the systems network administrator is one of just two true IT specialists at Midwest Legal & eData Services, a Milwaukee firm specializing in document imaging, data forensics and e-discovery. He embraces the idea that an IT professional needs a broad skill set and multiple areas of expertise.

Despite all he hears about outsourcing, Urbaniak says IT still has a role to play inside organizations, even ones as small

The Future Of IT ...

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- Pursue training and certifications – on your own time and on your own dime, if necessary.
- Aim to solve business problems, not tech problems.
- Develop soft skills like communication.
- Either commit to an industry and build business skills ...
- ... or develop deep IT skills and work for an outsourcer or service provider.
- Consider consulting.

as his. "In the future, more things are going to get outsourced, but it's not going to be all or nothing," he predicts. "I could see a 75/25 split between outsourced and in-house."

In that scenario, someone will still need to be on-site with hands-on knowledge of local software, networks and hardware. "You're going to need more of a multifaceted person, not so much in-depth on any one product, but knowledgeable enough to help or know where to get help," he says.

Urbaniak knows that if he's going to be that guy, he needs to stay current in all the technologies his employer uses. "I'm a generalist. I need to keep my skills up. It's just what our industry demands," he explains.

Plan for Lifelong Learning

How can IT workers traverse the current skills gap and get to work on the new technologies employers say they want now? Beyond that, how should they prepare for the rapidly approaching transformation of corporate IT?

First and foremost, tech managers and employment experts assert, IT professionals must never stop learning — even though some, if not all, of the training they need will be on their own time and on their own dime.

"You can't rely on a company for your growth and training anymore," says executive recruiter Weinman. "Except for a few enlightened companies, if they're training you at all, they're training you for what *they* need, not necessarily training for what *you* need to develop your technical skills over the long run."

That message resonates with Montalbano, who believes he's been successful in both his corporate IT and consulting careers in part because he's willing to invest his own time and resources in staying technologically current.

"You need to invest in your career. I have $2,800 worth of hardware — a server, two processors, a terabyte of storage, a whole cloud — in my house. That's how I learned cloud," says Montalbano, who also has a string of Microsoft certifications. "Nobody told me to get my [Microsoft Certified IT Professional credential], but that helped me get a job, and once I got to Catapult, I needed [expertise in] virtualization, so I took three weeks and took that certification exam."

In addition to pursuing training opportunities, IT professionals need to determine where their skills will fit best in the future.

They should begin by assessing where they are in the life cycles of three types of technologies: emerging, mainstream and legacy systems, says Scott Dillon, executive vice president, CTO and head of technology infrastructure services at Wells Fargo.

Dillon's organization offers employees "learning maps" that they can use to chart career paths and identify areas for further development. While the learning maps emphasize emerging technologies, "mainstream is still our bread and butter and the place where we devote most of our training efforts," Dillon says.

Of course, in an industry that never stops innovating, mainstream is always on its way to legacy. "The first question I would ask is, 'Does my current expertise have a long sunset ahead of it?' " says Penman, the CIO-turned-consultant. "Because if you're a Unix sysadmin and they're going to need two instead of 10, you need to get to a place where you're part of the growth rather than part of the containment."

Penman says the next questions should be, "Do I have a strong career track inside this company? Does it treat its people well? Is there room for growth?"

The point, Penman and others say, is that tech people must choose — and soon — whether to attach themselves to a company and an industry or to a skill set.

Those who are happiest doing a deep dive into a specific technology should look at those businesses with the most demand for such capabilities: consultancies, outsourcers and service providers. While the idea of moving to that end of the IT market may cause some IT purists to feel queasy, there's no shame in pursuing a career in what Montalbano calls "the other side of the cloud."

> **Except for a few enlightened companies, if they're training you at all, they're training you for what they need, not necessarily training for what you need to develop your technical skills over the long run.**
>
> **TODD WEINMAN,** PRESIDENT, THE WEINMAN GROUP

Penman agrees. "A lot of top talent is moving to service providers," he says. "If you want to be deep in virtualization, work for a supreme cloud provider like Amazon or Rackspace."

IT pros who want to be part of an organization or industry must improve their business acumen so they're able to explain and demonstrate how they contribute to the bottom line. "Hiring managers are looking for good thinking skills, good analytical skills, and good networking and relationship skills," says executive search expert Fairlie.

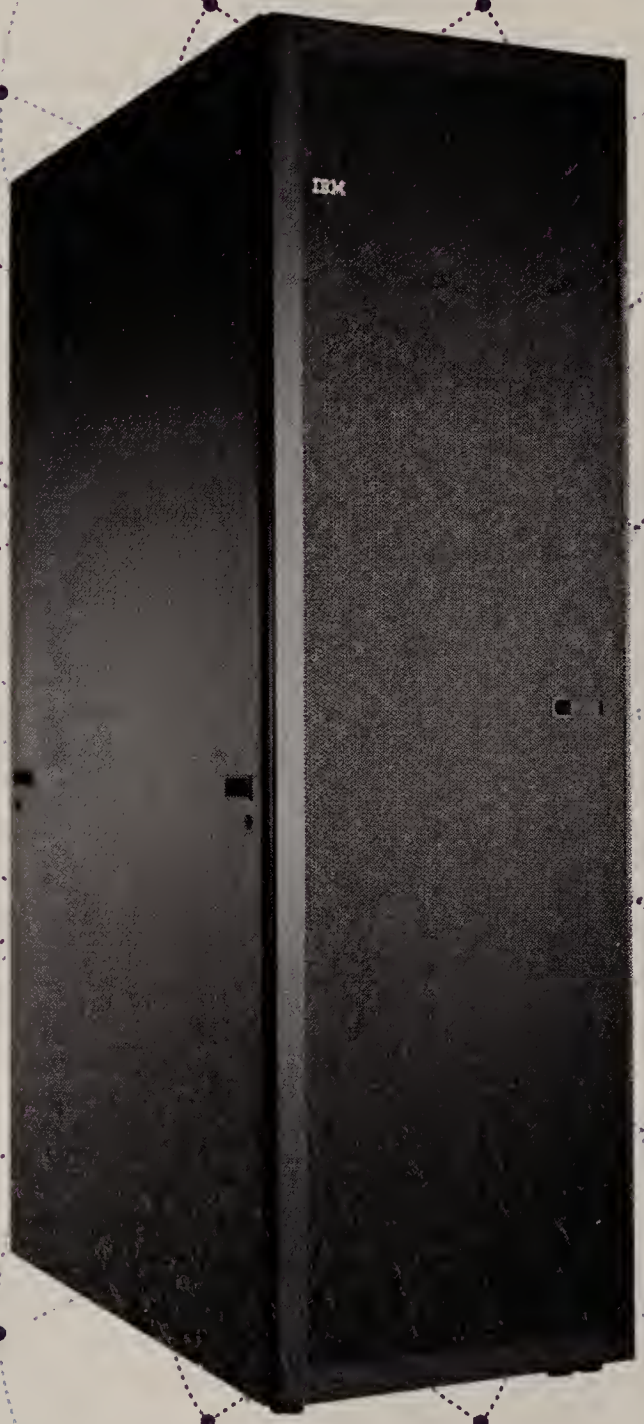
That's why Jason Rolader, an administrator at the Georgia Insurance Guaranty Association, decided to study computer information systems rather than pure computer science when he entered Georgia State University in 2000. "I almost went into computer science, but CIS seemed to speak more to me," he says. "It's more focused on applying tech to business in new and different ways."

Even so, he recalls "the handwriting was already on the wall" when he graduated in 2005 — tech companies were outsourcing and offshoring. "I didn't want to get caught up in that. I said, 'What can I do to differentiate myself?' " says Rolader, who's now 30.

He decided to pursue an MBA, graduating in May of 2009. "It was a great experience. I learned about business on a whole different level, and the hiring managers seem to like that combination. I'm a generalist — I'm tech-savvy, but I have the knowledge on the business side too," he says.

Now, however, Rolader worries that his tech skills aren't completely up to date, so he's pursuing PMP and VMware VCP5 certifications. "I hope that will help keep me relevant," he says, while acknowledging that he'll probably never be done pivoting between refreshes of his business and tech skills.

"Looking way into the future, I don't know that it's going to end," he muses. "It may calm down for a few years, but then some other disruptive technology will come along. You just always have to keep changing." ◆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Technology *for the* Greater Good

These Computerworld Honors laureates benefit society *by using low-tech gadgets for high impact.* **BY JULIA KING**

A **MOTHER IN TANZANIA** walks for three days with a sick child on her hip, only to arrive at a rural clinic whose inventory of malaria medicine is depleted.

It's a matter of life and death for the mother and child. But from a business standpoint, it's a straightforward supply chain issue. Antimalarial medicines — with a 96% cure rate — are available. Yet far-flung clinics have a hard time keeping them in stock. Having adequate supplies when and where they are needed is critical, because the medication isn't fully effective unless patients take it within 24 hours of contracting malaria.

Novartis — a company whose innovations include micro-chipped pills that can track whether patients take their medication on schedule — resolved the crisis in Tanzania by relying on, of all things, SMS text messaging.

Similarly, OhioHealth in Dublin, Ohio, is using text messaging to deliver health and wellness information to patients subscribing to its OH Mobile app. The app can alert obstetric patients of upcoming tests and procedures or remind pre-operative patients to refrain from eating and drinking after midnight the day before their surgery.

"A very important component of patient care delivery is dependent on patient engagement. That idea and the fact that the vast majority of patients had smartphones gave us the idea for the app," says Dr. Mrunal Shah, vice president of physician IT services at OhioHealth. "We wanted something easily deployable and easily updatable," he notes. The result: "Patients are leaving wonderful feedback. They're just hungry for more information, which is a fantastic problem to have," says Shah.

Novartis and OhioHealth are among dozens of 2012 *Computerworld* Honors laureates that are leveraging low-cost, consumer-oriented technologies to create and deploy systems and applications designed to greatly benefit society, especially

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By ensuring the proper medicines are available at remote clinics, like this one in Tanzania, health workers can treat and cure 96% of malaria cases.

in the areas of education and healthcare.

The *Computerworld* Honors program, now in its 24th year, recognizes organizations that create and use IT to promote and advance public welfare. Award winners will gather at an event in Washington on June 4 to celebrate their achievements.

Necessity Drives Innovation

Usability and affordability are the heart and soul of these innovations, many of which are being deployed in poverty-stricken and remote areas of developing nations where life's basic necessities — much less state-of-the-art IT and ubiquitous Internet access — are not readily available.

But what is available is SMS, which in remote areas performs more efficiently than costlier, more complex options, according to Rob James, CIO at Novartis. Working with IBM and Vodaphone, Novartis IT came up with a simple idea: Have each remote clinic text four numbers, representing the inventory levels of four different medicines, to distribution facilities in major cities that ship supplies. The application is known as SMS for Life.

Inventory levels for life-saving medicines are sent by text message directly to distribution facilities.

"The idea was to take that information centrally and look at inventory levels overall so we could do a better job of forecasting stock-outs," says James.

Initial results of a pilot test at 20 sites across Tanzania were daunting: More than 25% of remote facilities were totally out of stock on all medications.

"The good news is that once we had that data, we could reduce stock-outs to less than 1% in a very short time," James says. "That led to a rollout across Tanzania, then through Kenya, and we're now in the planning stages for Cameroon and the Republic of the Congo," he adds. Over the past decade, Novartis has provided more than 500 million malaria treatments for adults and children.

Developed by an IT team at Novartis, the SMS system comprises an SMS management tool and a Web-based reporting tool. The SMS app stores a single registered mobile phone number for one healthcare worker at each facility. Once a week, the system automatically sends a text message to each of these phone numbers asking for the current stock of medicines at their facility. Stock data is then returned using a short code number at no cost to the healthcare worker.

"This is one of those unique programs and one of our favorite programs in IT," James says, adding that everyone who worked on the project did so as a volunteer.

Low-Cost Literacy Tools

Keeping user costs low was also a major driver in the development of an application known as Mobile and Immersive Learning for Literacy in Emerging Economies, or MILLEE for short. Designed as a series of English literacy games that are played on cellphones, the application aims to improve English as a second language among poor children living in rural villages and urban slums in the developing world.

Matthew Kam started the project in 2004, when he was a graduate student at the University of California, Berkeley. When Kam moved to Carnegie Mellon University to become an assistant professor in human-computer interaction, he expanded the project with the idea of having students rewrite the software from scratch so

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that it would operate on very low-end cellphones.

"Before CMU, the application was running on higher-end phones," Kam explains. "What we were really trying to do with the expansion is to target the most affordable phones out there, so as to perform research pilots that reflect more realistic cost conditions. We were looking for the lowest common denominator," he says.

Specifically, Kam and his team were targeting Java Micro edition (J2ME) phones, which are significantly cheaper than high-end smartphones. Technical barriers included optimizing the application for use on low-resource devices with limited memory and organizing the English-language learning content, including graphics and voiceover files, on the phone's storage system so that file input and output remained efficient.

There were cultural challenges as well. The earliest game designs weren't intuitive to children in rural India.

"This forced us to take a step back and study 28 of their traditional village games and contemporary Western video games," Kam says. The analysis provided the team with a set of guidelines on how to design educational games for non-Westerners.

MILLEE team member Ashton Thomas, who graduated from CMU in May 2011, developed a game called Word Catch, in which a player is presented with an English word and four images, one of which corresponds to the meaning of the word. "You had to stop a ball over the correct image, and the speed of the ball would change. As the words got harder, the speed of the ball got faster," he recalls.

Thomas, who has since launched a fitness software company called Acrinta, recalls that one of the challenges for his MILLEE team was that it was geographically dispersed, with some members in India and others at CMU's campus in Pittsburgh.

"The time zone difference, the physical distance and the communication barriers were all challenges," he says. "The students in India would help maintain the code base and do some development. They would also take the phones and install the games and go to the learners to get feedback and relay all of that information back to us."

As Thomas sees it, one key to the value of the MILLEE project is that "it's a game, and as the students are playing, they're having fun." But he points out that the students are also learning, "and that is creating opportunities that could lead to serious social change" — an observation confirmed in a recent report from the British Council, which estimates that the salary gap between professionals with and without English skills in some developing countries is as high as 20% to 30%.

Enabling a Livelihood

Improving the economic prospects of villagers in India is the goal of MicroGraam, a project that taps mobile and Internet technologies to enable urban professionals to find, select and provide microcredit to underprivileged borrowers in rural India.

MicroGraam co-founder Sekhar Sarukkai notes that the concept of microfinance isn't new. But as he and co-founder Rangan Varadan saw it, it could be improved.

"A few years ago, Rangan went back to India to run the banking and finance practice for Infosys, and he saw that microfinance was a great model, but borrowers were struggling," he recalls. "They had to start repaying the next month after they borrowed the money," he explains. But it could take several months before a newly launched venture paid enough to begin repaying the original loan.

The two men decided to apply the principles of venture capital to the microfinance market. Rather than having borrowers start to pay back their loans immediately, lenders would begin to receive payments — plus an agreed-upon amount of interest — when the new venture became more solvent.

The model required transparency between lender and borrower, which MicroGraam addressed by developing a marketplace platform using open-source technology, including integration with online payment gateways. A key feature of the system is that micro-fund transfer costs are less than 0.5%, compared to the industry-standard 5%.

"Complete transparency is one of the most important ways technology can help these low-cost transactions. But you need to do it in a very low-cost manner," Sarukkai notes. "Open source helps a lot. This is a fully open-source application."

MicroGraam lenders can search through a database that includes descriptions of borrowers, photographs, and information about the purpose of and terms of the loan. Lenders also receive updates about the progress of the businesses they fund. In addition, the system provides scheduled reminders to MicroGraam's nongovernmental organization (NGO) partners that administer the loans on the company's behalf.

"MicroGraam doesn't have any field offices, so we go to select NGOs who are already working in villages and partner with them so we don't have any overhead on our end," explains Sarukkai. "It's the NGOs that go and collect the money, so it's very important for us to have visibility into that."

What has become equally important is providing transparency to the borrowers. This is done via SMS technology.

"Borrowers are very interested in visibility into their progress, and almost all of these people have phones, because they are very low cost," he explains.

In the past two years, MicroGraam has facilitated 836 loans totaling about $230,000. The repayment rate is 98%. A woman in the province of Trichy in India, who borrowed 1,500 rupees (about $50) to buy a mixer to grind flour, is typical of MicroGraam's borrowers, who are mostly women.

"She started making batter and selling the batter to others in the slum," Sarukkai says. "You could think it's not a big deal, but by selling batter she was able to share in profits. It took her a year and a half, but now she gets more than 1,000 rupees a month from selling batter."

"It's amazing how $100 can change lives so substantially." ◆

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Extreme BI

BUSINESS INTELLIGENCE

WHEN IT COMES TO MAKING WINE, Matt Wood believes cultivating customers is as complex as cultivating grapes. The success of both endeavors depends on many factors, including the tools used to grow the grapes and the business.

With that in mind, Wood is nurturing his customer base with the help of one the most modern tools available: business intelligence software. He uses BI to understand who buys his company's wines and to predict which customers might switch to other brands, so he can modify his marketing efforts accordingly. "It's really trying to look at people's behavior and get to the insights through the BI tool. That's where the huge opportunity is," says Wood, estate director of Domaine Chandon and Newton Vineyard in Yountville, Calif.

The basic goal of business intelligence is to turn raw data into information. For many businesses, that means using BI tools to transform data into reports and computerized views of past performance — "rear-view data," as one BI specialist puts it.

But as more organizations develop mature BI infrastructures

Continued on page 34

At these organizations, **business intelligence** means more than generating reports — it means finding red flags and solving problems. **BY MARY K. PRATT**

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Thompson supports self-service BI.

IT's Shifting BI Role

WHEN MICHAEL THOMPSON started as director of business intelligence at Children's Healthcare of Atlanta two years ago, he quickly learned that some doctors had already figured out how they wanted to use BI. Case in point: One emergency department physician was accessing data to create dashboards to predict, based on past trends, the types of injuries and medical conditions that patients were most likely to seek treatment for at certain times of day.

Some techies might feel the need to defend their turf in such situations, but Thompson says he sees real value in getting BI tools into the hands of those who really need the information.

"We believe that the power of analytics is [greater] the closer you are to where the action happens," he says. So he and his 15-member team are helping doctors and nurses to use BI more effectively.

The self-service model appears to be the future of BI, analysts say.

A January 2012 Forrester Research report says information workers will demand more control of BI tools and declares that "the current BI approach – a never-ending stream of business requests that IT cannot keep up with – has become unsustainable." But IT isn't out of the picture, analysts and IT leaders say: Techies are still needed to support and maintain the underlying infrastructure and data.

And rather than take orders from the business side about the kinds of reports required – a sometimes cumbersome process – IT shops are developing hybrid operations that sit between IT and the business and require people with a strong grasp of numbers.

Created two years ago, Thompson's team is one of those new BI groups. His staff includes people with backgrounds in hospital administration, finance and healthcare. Behind them are specialists who understand the technology, the data and the data warehouse and who can build the architecture the organization needs.

"We're a rare breed. We have one foot on either side of the house," Thompson says.

– MARY K. PRATT

Continued from page 32

and practices, they're learning to push their BI tools to answer questions they never thought they could ask. And they're moving into predictive analytics, where they can analyze historical data to develop ideas about what will happen in the future so they can craft better strategies to cope with what's ahead.

"To be able to drill down, to look for patterns that aren't obvious from the start, that's powerful," says David White, an analyst at research firm Aberdeen Group.

That kind of innovation is enabling organizations to respond to challenges more quickly, effectively and efficiently.

Wood mines vast amounts of customer data using a system set up by eWinery Solutions, an e-commerce software and services provider. The system, which uses the WebFocus BI platform from Information Builders, can determine whether customers open emails sent by the vineyard, whether they buy wine in response to an email or a telemarketer's call, whether they make purchases via the company's website, whether they visit the winery for tastings and tours, and whether they prefer red or white wine.

Wood says he's not so much interested in seeing, for example, the number of people who buy via the website or who prefer red wines. It's important to know such details, he says, but the real value that comes from all of that information is understanding what certain groups of people are likely to do.

Right now, he's looking for patterns among customers who drop out of the vineyard's wine club, so he can figure out marketing strategies to keep their business.

"I was convinced that if I could understand buying habits and then identify patterns, I could actually predict people's behavior and have proactive marketing campaigns," Wood says. "And if we can proactively market to those people — say to them, 'Come up for lunch, it's on us' or 'Sample our newest release before everyone else' — then we're building something where we can see what the pattern is for these people moving forward."

According to White, such innovation is critical, because organizations must react to market pressures very quickly.

Research shows that 65% of managers say their decision windows — the time they have to get information and make a decision — are shrinking, says White. In fact, 44% of 293 business leaders that Aberdeen surveyed last year reported that, in order to make more effective decisions, they need actionable information within an hour, in near real time (minutes) or in true real time.

They need to quickly access data and interact with it. And that need is driving the push to put BI tools into the hands of business leaders. As a result, the model of self-service analytics is replacing the traditional BI model of IT-managed reporting, White adds.

"People have to act faster and faster, so we'll see more real-time or close-to-real-time need for data," says White. "People will look to tap more and more into the operational data as it's created, so the visualization of data will continue — as will the shift to self-service BI."

Helping At-risk Students

Barbara Boyd understands the importance of getting more information into the right hands more quickly.

Boyd is president of Learning Circle Education Services, a Columbus, Ohio-based nonprofit that was part of Nationwide Insurance until it was spun off in 2010. She and her team help

school districts make better sense of their data. And like Wood, they use WebFocus to do that.

Working primarily with the Columbus school district, its 118 schools and 50,00 students, Learning Circle's goal is not only to produce reports, but also to ask questions that educators couldn't answer without BI.

Boyd says her team aims to do more than analyze test results. The real innovation, she says, is using BI to identify students who could be headed for trouble based on a collection of indicators that might not raise red flags early enough when observed individually.

To do that, Learning Circle created an application that's designed to identify at-risk children by evaluating data related to academic performance, attendance and discipline.

"It took time for people to understand how to use data and the power of data, and then it took getting data on an earlier basis," Boyd says. "And now that they see the benefit of seeing data in a different way, they're saying, 'I want to see this or pull in this data set,' so we can [ask], 'What questions do you want to answer now?' "

Fighting Crime and Improving Healthcare

In one unusual application of BI tools, Swedish police used QlikView from Qlik Technologies in Radnor, Pa., to analyze volumes of reports to find a shooter suspected of multiple murders. Berth Simonsson, an analyst for the police department in Skane, Sweden, says that such a project would normally take at least three people three months to complete, but the department was able to do it in minutes using the BI program.

"Analysts were able to search through all notifications in less than three minutes to find clues or reports that could be traced to the shooter," Simonsson says, noting that analysts applied the same search process to the police department's event system, which logs notes on every call authorities receive.

Dr. Patrick Frias, director of outpatient operations for the cardiology group at Children's Healthcare of Atlanta's Sibley Heart Center, started with a similar approach when his organization adopted QlikView several years ago.

"We looked at business intelligence solutions that could get our hands on the data more immediately," he says, explaining that he and his colleagues work with a data analyst to examine data on the tens of thousands of patients the center treats annually.

Frias, a pediatric cardiologist, acknowledges that using BI tools to analyze administrative data is a good way to help the center run more efficiently. But he notes that the real value of BI is that it allows doctors to examine clinical data and gather information that can dramatically improve healthcare delivery.

"We're trying to learn more about the kids' history, the families' history, and mine the data to find that [key indicator]," he says. "It might be a few questions, it might be this on the EKG, or a family history of sudden death, that points to that child at risk." ◆

Pratt *is a* Computerworld *contributing writer in Waltham, Mass. Contact her at marykpratt@verizon.net.*

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Security Manager's Journal

MATHIAS THURMAN

On the Lookout for Rogue IT

A seemingly innocent request leads to the discovery of an unapproved, customer-facing SaaS application.

IN THE AGE of software as a service, when just about anyone in a company can spin up an enterprise application with just a credit card and an email address, it can be tough for the security manager to keep on top of things.

How do you know, in a globe-spanning enterprise, that no one has instituted some cloud-based service in a way that threatens the company's intellectual property? Last week, luck led me to one such application, but that has me thinking that there has to be a more comprehensive way to uncover these things.

I have the authority to sign off on changes to the IT infrastructure. Because I like to have a life outside of that activity, I have established criteria for what sorts of changes need my approval. For example, I don't need to OK adding memory or a CPU to a server, but I don't want any publicly facing Web servers installed in our DMZ without my knowledge. Some of the changes that I retain oversight on might seem trivial, but last week's incident illustrated why they aren't.

What happened was that I received a request to white-list a particular domain so that it wouldn't be identified as spam. On the rare occasions when we receive such a request, we evaluate the domain, running it through some Web-based validity checkers. If it's not identified as hosting malware or other risky content, and if there's a business justification for releasing the domain from the spam filter, we allow such email to be delivered to the employee making the request.

The domain in question didn't set off any alarms and didn't appear to be malicious. OK, so what's the business justification? The request was from our customer service operations center in Hyderabad, India. The folks there told us they were deploying a new Web-based tool to give our customers access to certain knowledge-base data held on our internal servers. But our IT enterprise applications team knew nothing about this application. In other words, we had stumbled upon the deployment of a customer-facing application that was bypassing our strict review process.

What more could India tell us? Plenty, and none of it good. The SaaS vendor has eight employees and is run out of a small apartment. It has one Web server, hosted at Amazon. It has no U.S. presence. As for the application architecture, authentication requires a username and password, but there are no requirements for password complexity, and users aren't forced to change their password on first log-on. Passwords are stored in clear text, and sessions aren't encrypted. But this vendor is security-conscious, we were assured: It offers two-factor authentication. Um, yes, but the second factor is the user's date of birth.

We immediately put a halt to work with this vendor. It could have been a very embarrassing situation. After all, we are a publicly traded company, and many of our customers are banks, healthcare providers, utility companies and government organizations with complex compliance requirements.

This was an embarrassment that we barely avoided, and only by chance. Now I'm wondering how many other rogue enterprise applications have been implemented. What to do?

Luckily, all outbound network traffic must pass through our new Palo Alto Networks application-layer firewalls. A nice feature of these firewalls is that they can capture the destination of all network traffic as well as the actual Web addresses that are being accessed. I plan to filter out all the valid applications that we have approved or know are not risky. Whatever falls out will be evaluated in hopes of identifying other rogue SaaS applications being used in the enterprise. ◆

This week's journal is written by a real security manager, ***"Mathias Thurman,"*** *whose name and employer have been disguised for obvious reasons. Contact him at mathias_thurman@yahoo.com.*

JOIN IN the discussions about security! **computerworld.com/blogs/security**

"This has me wondering how many other rogue enterprise applications have been implemented.

Trouble Ticket

» **At issue:** The chance discovery of a rogue enterprise application suggests that others might exist.

» **Action plan:** Check network traffic with the application-layer firewalls and see what pops up.

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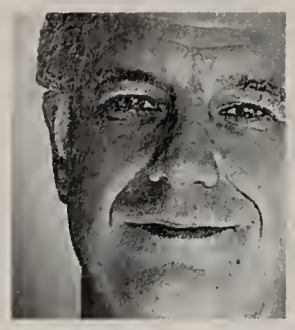

BART PERKINS

Social Media Passwords In Jeopardy

> Even if you'd show your Facebook account to your grandmother, an employer demanding your password is intolerable.

PASSWORDS ARE LIKE POLICE DOGS: They belong to one person. But the sanctity of passwords is being breached. Some HR staffers and recruiters have asked job candidates for their passwords to Facebook, Twitter and other social media sites. Hiring managers have asked applicants to log on to social networking sites during interviews in order to review the interviewee's online activities. And some companies have policies that require employees to be Facebook "friends" with their HR liaisons.

Such scrutiny may be acceptable for job hunters who will need high-level government security clearance, but it's an unwarranted invasion of privacy for most people. Even if you're comfortable showing everything in your Facebook account to your grandmother, this type of intrusive demand is insulting and intolerable. Job candidates should fight back, and employers should think about the consequences.

Employers may claim that reviewing social media activity helps them make the right choices in expensive hiring decisions. But they should consider the following potential ramifications:

- **A culture of mistrust.** Few people want to work in an environment that operates on the assumption that everyone is untrustworthy and must be monitored. George Orwell's *1984* was fiction, and it should stay that way.
- **Brain drain.** Some people may be desperate enough for a job to divulge their passwords, but most will not tolerate such a request. Talented people have choices, and they might choose to work elsewhere — perhaps at your competitor.
- **Security policy violations.** Most organizations' security policies forbid sharing passwords for corporate systems. Demanding job applicants' social media passwords sends a mixed message. Furthermore, it's essentially coercion.
- **Biased hiring decisions.** Posted information may cause interviewers to lose their objectivity. The candidate could be dating someone the interviewer knows, or supporting (or attacking) the interviewer's favorite charity or political organization. Such scenarios could unfairly sway hiring decisions.
- **Legal limbo.** In the U.S., it's illegal to ask job candidates about their race, religion, sexual preference, and so forth. Demanding access to candidates' social media accounts may not technically violate this prohibition, but it certainly violates the spirit of the law because those details can often be inferred from posts and pictures.

Privacy experts are becoming concerned about this abuse of social media. Maryland recently prohibited employers from requesting access to the social media accounts of job applicants and current employees. California and Michigan are close behind. Congress is also considering bills banning the practice nationally. Stay tuned.

What's more, Facebook has threatened legal action against employers that ask for passwords. Section 4.8 of the Facebook Statement of Rights and Responsibilities states that "you will not share your password, ... let anyone else access your account, or ... jeopardize the security of your account." If Facebook enforces this policy aggressively, employers may discover that many people would rather change jobs than lose their Facebook accounts.

Publicly available information about job candidates is fair game. But responsible organizations will not condone interviewing techniques that violate a person's right to privacy. They should update their corporate security policies and be prepared to enforce appropriate sanctions. Don't let your organization become the first court case. ◆

Bart Perkins is managing partner at Louisville, Ky.-based Leverage Partners, which helps organizations invest well in IT. Contact him at BartPerkins@LeveragePartners.com.

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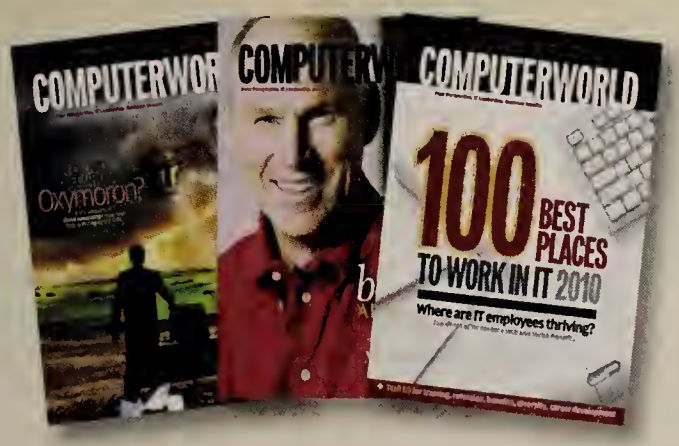

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DICE SURVEY

IT Pros Looking For the Best Job, Not Just Any Job

A couple of years ago, the big worry among IT professionals was the possibility that their position would be eliminated.

That was the No. 1 career concern in 2009, when 24.7% of the respondents to Dice's salary survey said it was the thing that preoccupied them the most. By 2011, that worry had dropped to No. 3, according to the 2012 edition of the survey. For the second year in a row, the top concern is finding an appropriate new position for one's skill set.

FOR 2012, WHAT'S THE BIGGEST CAREER CONCERN YOU HAVE?	2009	2010	2011
Finding an appropriate new position for my skill set	n/a	18.5%	18.6%
Keeping skills up to date / being valuable to employer	16.8%	14.3%	14.9%
Position elimination	24.7%	15.6%	14.3%
Increased workload	11%	11.4%	12.8%
No concerns at this time	9.9%	11.1%	11.5%
Lower salary increases / lower billing rates	14.7%	11.2%	10.5%
Canceled projects / fewer projects	14.7%	8%	7.9%
Increased outsourcing	5.4%	5.4%	4.9%
Other	n/a	2.5%	2.8%
Position relocation	2.9%	2%	1.8%

Note: Percentages may not add up to 100 because of rounding.

SOURCE: 2012 DICE TECH SALARY SURVEY, CONDUCTED ONLINE WITH 18,325 EMPLOYED TECHNOLOGY PROFESSIONALS IN THE FALL OF 2011

Q&A

Rob McGovern

The CEO of Jobfox explains why job seekers should **avoid clichés on their résumés.**

What are some of the clichéd terms that are overused on résumés? Here are four: "responsible for" (as in "responsible for managing X"); "dedicated professional" (as in "dedicated professional looking for a challenging new position"); "team player" (as in "I'm a team player ready to devote myself to a new position"); and "entrepreneurial" (as in "entrepreneurial professional looking for an exciting new opportunity").

Why should such phrasing be avoided? These clichés will make you look like everyone else and put the recruiter to sleep. Instead, you should focus on specific accomplishments, so the employer sees you as a potential game-changer. For example: "Sales manager who drove 150% increase in sales by upgrading the staff and eliminating poor performers."

Passive phrasing like "assisted with," "responsible for" and "organized" are task-based descriptions. Dynamic, active verbs like "drive," "achieve," "contribute" and "accomplish" produce more results-oriented descriptions. The goal is to come across as less of a doer and as more of an achiever.

Generic words and content will be overlooked because they could apply to anyone. Specific achievements, measurable success, and honors and awards make you unique. You need to come across as passionate about work. Your résumé needs to be high-energy.

Likewise, terms like "dedicated professional," "team player" and "entrepreneurial" say nothing about who you actually are. To get noticed, your résumé must communicate your contributions and how you've made a difference in the places you've worked. Employers want to know how you will go on to make significant contributions in their company. You need to show recruiters who you are and what you've accomplished. Illustrate your successes with active phrases and descriptions – don't simply list your duties. Show the employer how you have had successful experiences doing exactly what they are currently looking to hire for.

How can someone who doesn't have a great facility for language learn to express things originally on his résumé? Speak to the problem the employer is trying to solve by filling this position. Are they trying to increase software quality, more quickly resolve customer service calls or speed the delivery of new products? Employers hire people to solve problems. Highlight what you have to offer that will specifically meet their needs.

Do your research. Every industry, company and job description has a specific vocabulary. Your résumé should reflect how hiring you will contribute to and improve their work environment. Incorporating key words demonstrates that your résumé and skill set are specifically tailored for the job. Your résumé must be completely customized. It is also important to note that many recruiters use automated search systems to either target or filter applications. The inclusion of key words is essential to landing at the top of the pile.

– JAMIE ECKLE

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COMPUTER
Interested candidates send resume to:Google Inc., PO Box 26184 San Francisco, CA 94126 attn: Christine Doyle.

Please reference job # below:

HW Test Eng Position (Mountain View, CA) Design, develop, modify, and/or test hardware needed for various internet search engine company projects. Req d exp include - #1615.461 - hw R & D lab environ; optical tech; multi-mode, single-mode, metro, optical & elec test equip; schematics; eng drawings; sys used key components; subsys hw optical perf analysis; & vendor selection.

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Bus. Oper Assoc Position (Mountain View, CA) #1615.1170 - Work with cross-funct, multi-regi teams to perf price analyses & dev monetization strategies for Fortune 500 co & make presentations to sr leadership of Fortune 500 co.

Specialist Position (Mountain View, CA) #1615.496 - SQL & Relational Databases; & using stat sw incl: SAS, SPSS or R; & prog mgmt.

SW Eng Positions (Mountain View, CA): Design, develop, modify, and/or test sw needed for various internet search engine co. projects. Exp. include:
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#1615.3077 - data struct, algorithms, large sys sw design & dev, Unix or Linux, C or C++, STL, Python, multithread, database design, SQL, TCP/IP, info retrieval & data mining, large scale mach learning, & parallel & dist computing.
#1615.1622 - dev in C++, Java, & Python; dev, test, & enhance prod & sys utilities; & design, implement, test & maintain dist sys.
#1615.437 - soc algorithms; mach learn; collaborative filtering; & multi-agent sys.

SHARK TANK

TRUE TALES OF IT LIFE AS TOLD TO SHARKY

HAL MAYFORTH

Interesting Idea, but No

Pilot fish goes to work for a dot-com where the executives are complaining about how unreliable their phone system is, along with uptime issues in the server room. "During the interview process, the network staff said there were dedicated uninterruptible power supplies (UPS) in the server room," says fish. "I confirmed what appeared to be more than an adequate number of them deployed. Two days into the job, just about the time I finished the paperwork and orientation process, there was a brief thunderstorm. The building power barely flickered — and all of a sudden the phones went dead and servers went down. Within about two seconds of walking into the server room, I figured out the problem: Someone had daisy-chained all the UPSs, with one poor device at the end plugged into a power outlet. I inquired of the gentleman who had assumed the interim responsibility. He said that, as far as he was aware, pooling all of the battery power was supposed to provide longer runtime."

She's the Technical One?

This company has just upgraded to a new email service, and one of the sales execs is having trouble following the instructions for his home PC. "Not being very technical, he had his wife call me to ask for help in getting him logged in," reports the IT pilot fish who wrote the instructions. Fish remotes into the exec's PC and gets as far as the password without a hitch. "Can you just type it? The password is 'A B C dash dash 1 2 3,' " exec's wife says. But when fish types the password in, it's rejected. He tries again. Still no dice. Are you *sure* that's the password? "Yes, I am absolutely sure. But . . ." But? "Well, the dashes aren't next to each other. They're on top of each other." Sighs fish, "Once I typed in the equals sign, I was able to log into the webmail site just fine."

Never Assume

Support pilot fish is tasked with replacing a phone because a professor at the local college can't hear his voicemail. "I was told by my boss to get him one of the new digital phones, because this professor was raising a real stink," fish says. "My boss told me, 'He has a hearing aid, and the current phone must be causing problems with retrieving messages.' I did the setup for the new phone and ran a new wire to the digital card on the phone bank. Then I went to see the professor. I switched out the phone and asked him to test it. But instead of retrieving the voicemail from the phone, he opened up Outlook, found one of his voicemail messages and hit play. He said, 'Look, you still didn't fix it.' It took less than a minute to plug the speakers back into the PC. Then he told me he had noticed that his PC had been very quiet."

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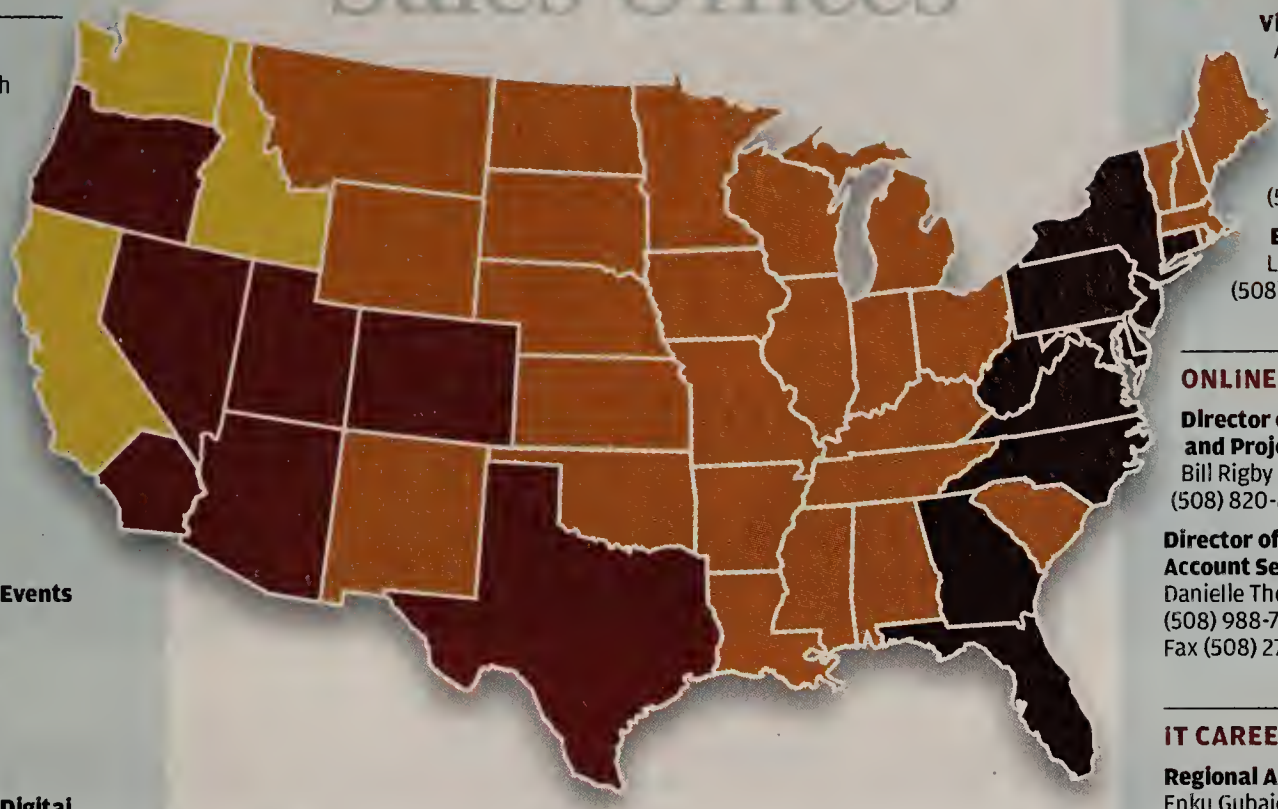

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THORNTON A. MAY

The Caveman in the Executive Suite

> My thinking on executive identity has meandered as far back as our hunter-gatherer forebears.

I'VE BEEN THINKING A LOT about executive identity, and that's what came to mind when I read David Weinberger's online bio page. The always amusing and very smart author of *Too Big to Know: Rethinking Knowledge Now That the Facts Aren't the Facts, Experts Are Everywhere, and the Smartest Person in the Room Is the Room* has more than one take on who he is. Two are from his left brain (one is full of hype, and the other is "relatively hype-free," he says), and a third take comes from his right brain (this one isn't completely nonlinguistic, he notes, because we have yet to develop "tactile and aromatic plugins").

What really resonated for me, though, was his "no brain" self-characterization: "Him write good. Him help companies do stuff. Him smell OK."

That's because my thinking on executive identity has meandered as far back as our hunter-gatherer forebears. (I'm a futurist, but deeply steeped in the past.) In *Thoughtful Foragers: A Study of Prehistoric Decision Making*, Steven J. Mithen shows us not only how clever paleoarchaeologists are when "interviewing" long-dead decision-makers. He also demonstrates how position in the prehistoric workplace hierarchy was a function of prowess in the primary value-producing activities of the era (food-gathering). Stone Age executives were chosen entirely on merit.

For much of human history, that wasn't the case. Nearly zero flexibility and extremely limited progress were the hallmarks of century after century. In the Middle Ages, and during other epochs, identity (position in society) was a function of blood — you were born either a noble or a peasant — and what you did was a function of tradition. In feudal societies, there was (outside the occasional fairy tale) very limited social mobility.

In fact, because one's identity was so closely tied to one's immutable social role, the Middle Ages gave rise to many of the family names used today in the Western world. Villagers would refer to others by their occupation, which is how we got all those Hoopers, Coopers and Smiths.

Of course, all of that changed in the modern era, as merit came to be the most important element in sorting out who would lead and who would follow. Right? Well, yes, to a point. But in *Mad Men*'s 1960s, important parts of executive identity appear to have been based on elements outside of one's control: gender, age, race, health and physical stature. (We'd all like to say we're entirely beyond this, but we do consistently give the job of U.S. president to the taller candidate.)

In any event, we've made progress, thanks to legislation, enlightened self-interest and a hypercompetitive global marketplace. Merit counts for much more than it did at any time since we hunted together in clans — and executive identity has returned to its prehistoric roots.

Position in the workplace hierarchy of optimally managed enterprises has returned to being a function of prowess in the primary value-producing activity of the era. Today, that isn't food-gathering; it's the conversion of ideas into cash. The way to do that in the 21st century is to master information use — to know all the ins and outs of the tools, processes and purposes associated with data, information, content and knowledge.

In the "no brain" vernacular of David Weinberger, executive identity can be described as: "Him got good data. Him do smart analytics. Him take action and make money." ◆

Thornton A. May is author of *The New Know: Innovation Powered by Analytics* and executive director of the IT Leadership Academy at Florida State College in Jacksonville. You can contact him at thorntonamay@aol.com or follow him on Twitter (@deanitla).

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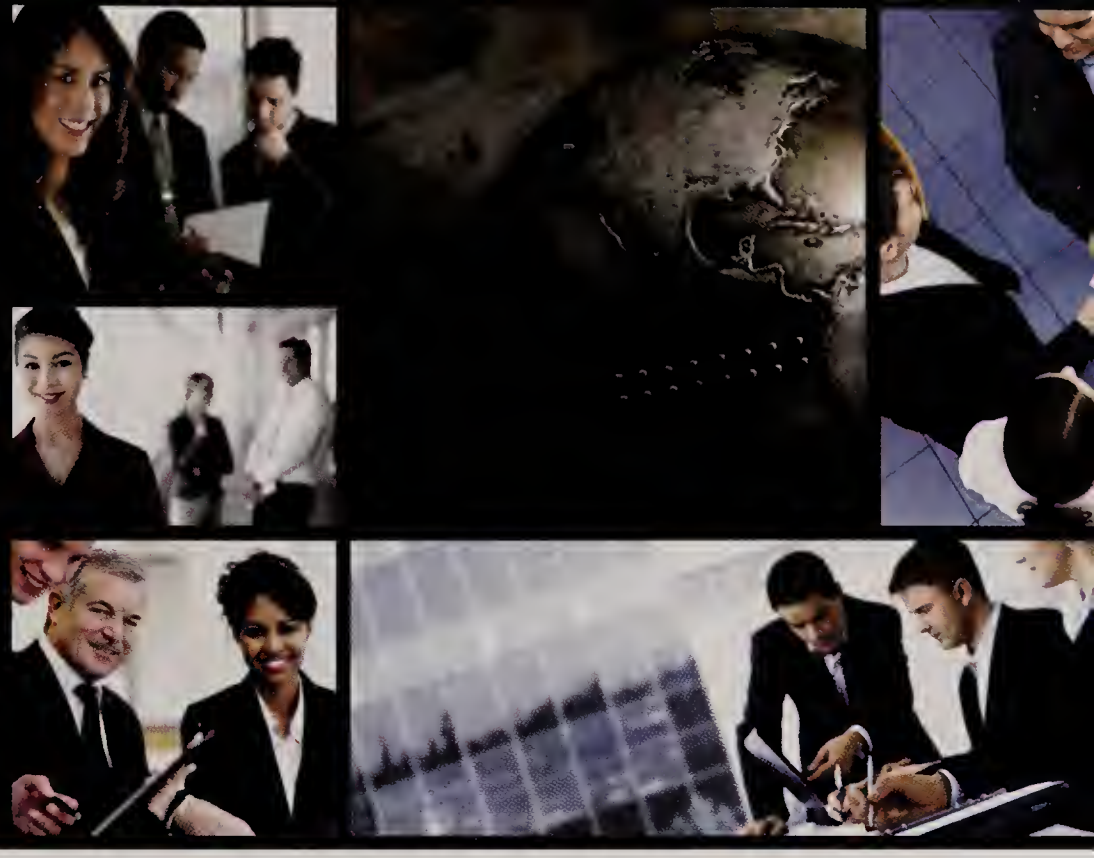

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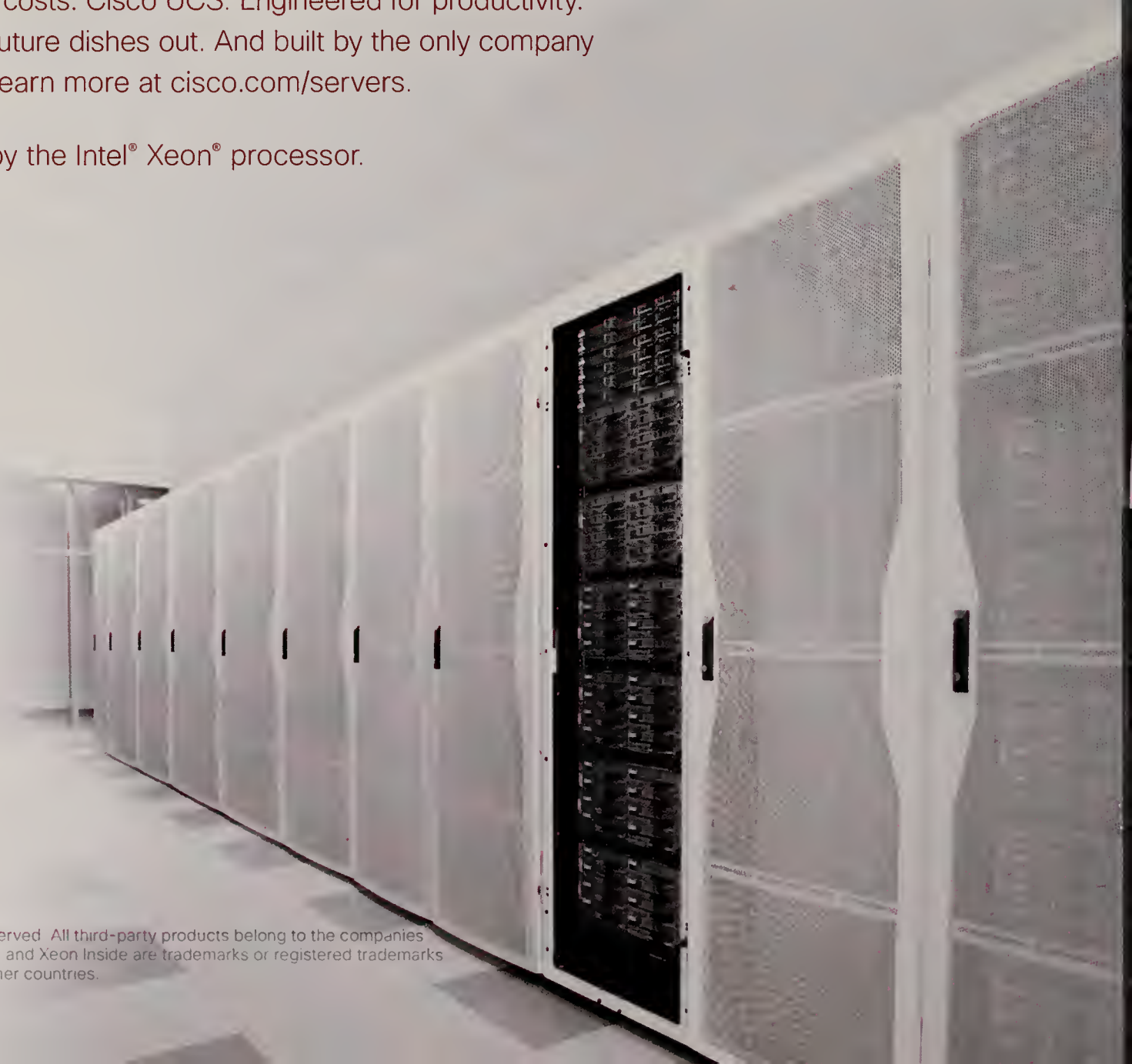

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